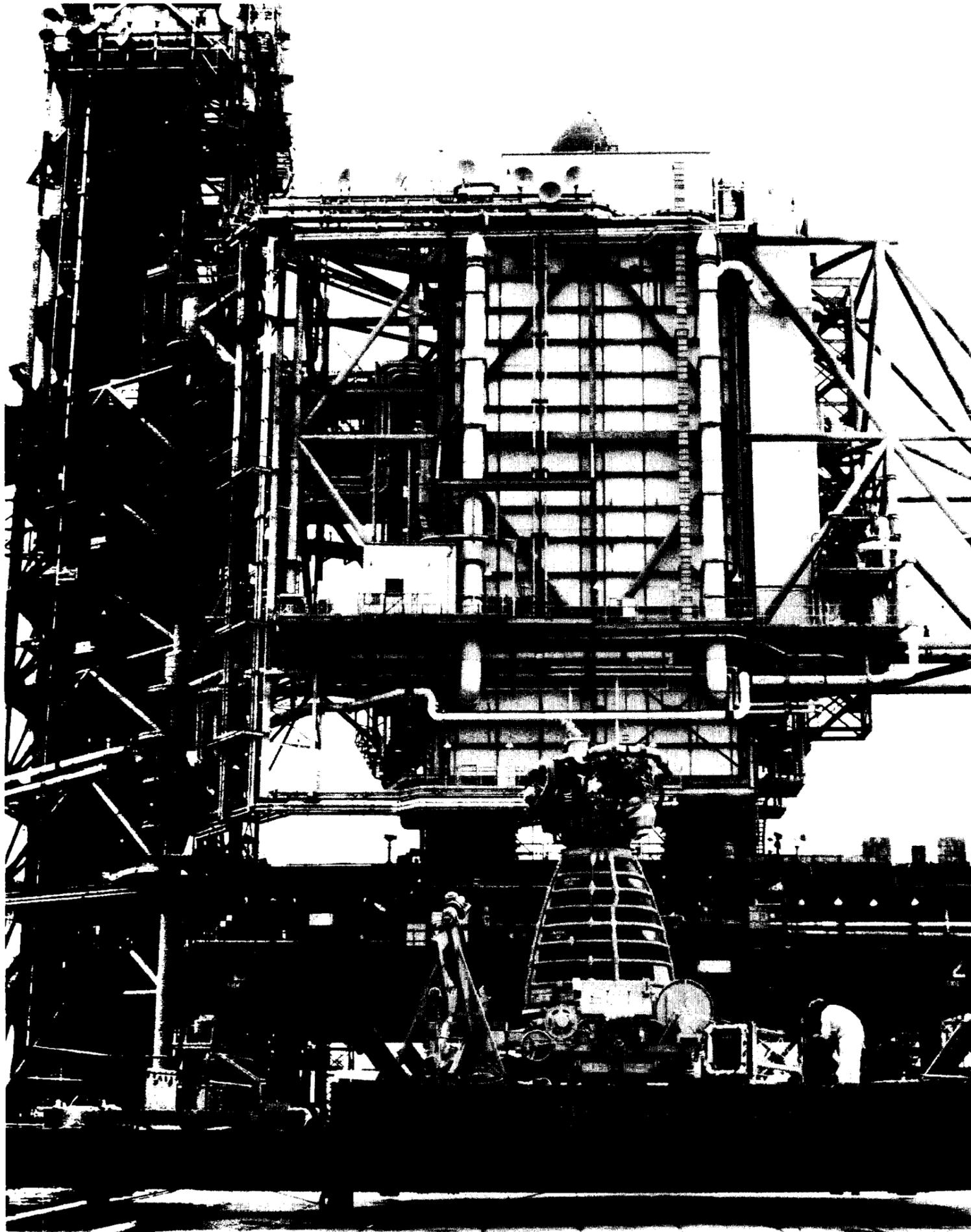


Space News Roundup

Vol. 22 No. 5

March 11, 1983

National Aeronautics and Space Administration



Shuttle Challenger main engine No. 2 (2015) is shown here shortly after its removal from the Orbiter for transport back to the Vehicle Assembly Bldg. at the Kennedy Space Center last week. A team of

technicians repaired cracks in this and another main engine as preparations for the delayed launch continue.

SETI resumes

The search for extraterrestrial life has resumed.

For at least the next four years, an 85-foot diameter radio telescope 25 miles west of Boston will scan the stars 24 hours a day, every day, in the most comprehensive search yet for signals from civilizations which may exist — which some believe are certain to exist — elsewhere in the universe.

Since the 1960s, under the SETI (Search for Extraterrestrial Intelligence) program, the United States has periodically scanned the heavens for radio signals from extraterrestrial civilizations, but the effort could only be funded for operations which lasted a few hours at a time, and the project was ultimately cancelled by Congress.

This latest effort, called "Suitcase SETI" because the equipment being used is relatively small, is being funded primarily by the Planetary Society, a group founded two years ago by Cornell astronomer Dr. Carl Sagan and former Jet Propulsion Laboratory Director Dr. Bruce Murray.

The Oak Ridge radio telescope owned by Harvard University will be hooked to physicist Paul Horowitz's "suitcase SETI," a small but advanced machine which can listen to 128,000 radio channels at once and distinguish between actual messages and the normal radio noises of the universe.

The search will concentrate on those frequencies which scientists consider likely for communication, such as 1.42 gigahertz, the frequency of the hydrogen atom.

The equipment has been tested in a scan of 200 neighboring stars at the Arecibo Observatory's 1,000-foot radio telescope in Puerto Rico.

During the search over the next few years, Horowitz will be able to dial up his computer through a telephone modem in his office and see how the search is going.

The odds against picking out intelligent signals from the mass of radio noises in space are immense, but so, some would say, are the odds that sentient life does exist elsewhere in the universe. "It could require a long term search," Sagan said. "Years or decades."

The Planetary Society, a 110,000-member organization based in Pasadena, California, has already spent \$60,000 to prepare the Oak Ridge radio telescope for the search and anticipates spending another \$20,000 a year for operations.

(Continued on page 4)

IRAS scans Large Magellanic Cloud

The first images of infrared sources produced from data radioed to Earth by the Infrared Astronomical Satellite (IRAS), launched Jan. 25 by NASA, revealed sources in the Large Magellanic Cloud not visible to optical telescopes on Earth.

The highly sensitive telescope scanned part of the cloud recording infrared emissions from stars and clouds of dust and gas.

The Large Magellanic Cloud is 155,000 light years from Earth and is a companion galaxy to the Milky Way.

In a nebula of gas and dust within the cloud called 30 Doradus, IRAS produced an image of a cloud nicknamed the Tarantula by astronomers, as the long, separated filaments of the cloud gave it a spider-like appearance. The image is presented in false-color with white as the brightest detector reading and blue the faintest.

The Tarantula is in a portion of an IRAS scan across the Large Magellanic Cloud in which dozens of infrared sources, stars and regions of dust and gas are seen,

most of which are not visible from Earth by optical telescopes. Some of the sources may be new stars forming behind clouds of dust and gas that radiate the star's energy in the infrared.

The 30 Doradus nebula is a giant H II region in the Large Magellanic Cloud. H II regions are clouds of hydrogen that have been ionized by the ultraviolet radiation from a very hot star.

Giant H II regions such as 30 Doradus are powerful emitters of far infrared radiation. This image represents the infrared signal at a

wavelength of 100 microns, and shows the complicated structure present in this nebula.

Some astronomers have suggested that this nebula contains a monster star, thousands of times more massive than the sun.

IRAS is a joint international effort of the United States, the Netherlands and the United Kingdom.

The United States produced the ultra-sensitive telescope, the Netherlands provided the basic spacecraft to carry the telescope and the United Kingdom operates

the IRAS tracking station at the Rutherford Appleton Laboratory at Chilton.

The telescope's sensitivity is produced by the use of liquid helium in the satellite to cool the infrared detectors to two degrees above absolute zero. This allows them to register the faintest impulse of infrared from objects.

IRAS will scan the universe for a period of seven to nine months to produce an all-sky infrared survey for the first time and is expected to revolutionize astronomical knowledge.

Space News Briefs

New book details Space Telescope

"There is good reason to believe the Space Telescope will be the most important scientific instrument ever flown," NASA Administrator James M. Beggs has said, and a new book available from the Government Printing Office tells why. The new instrument will be able to view objects 50 times fainter and seven times farther away than Earth-based telescopes, and will be able to scan a volume of space 350 times greater than terrestrial observatories. The new book, "Space Telescope," is aimed at the general reader and is available for \$5.50. The GPO stock number is 033-000-00862-7. The Space Telescope is currently listed on the Shuttle manifest for launch aboard *Atlantis* on STS-25 in April, 1985.

Final SRB report issued

The malfunction which led to the loss of the two solid rocket boosters during the launch of STS-4 was a premature separation of one of the two riser attachments in the main parachutes, a final report on the incident says. When small explosive charges separated the frustrums from the boosters about six minutes after launch, an acceleration switch was jarred and closed prematurely, releasing the main parachutes well before they should have been. Before STS-5, the booster decelerator system was modified to eliminate the acceleration switch and the system worked perfectly, the report says.

House votes funds for math and science

The House of Representatives last week voted to spend more than \$1 billion over the next five years to improve the nation's competence in math and science. The bill was passed 348 to 54 and was sent to the Senate. The bill includes a \$425 million measure to allocate aid at the local level for math and science teaching programs. The Reagan Administration has also proposed a \$50 million scholarship program to encourage teachers of math and science.

Bulletin Board

Lab seeks test volunteers

The Neurophysiology Laboratory at JSC is seeking volunteers to test a new method which may help prevent motion sickness. The procedure involves autogenic training, which is a mental gymnastic designed to increase adaptation capacity and body resistance to all kinds of stress. People who are very susceptible to motion sickness would be especially valuable for the test. For more information, call Lynn Hill at x4384.

UAW food drive ends soon

The United Auto Workers, who represent hourly employees at Rockwell International here, are working nationwide to collect food and donations to aid the country's unemployed. The General Motors Corp. has pledged to match dollar for dollar each donation and will contribute 50 cents for every can of food collected. The collections are underway in 73 cities across the U.S. for an eight-week period. Food and cash raised locally through the drive will be channeled through charitable organizations here in Houston. In the JSC community, UAW volunteers are asking that participating employees consolidate their various donations until Tuesday, March 15, when three drop points will be staffed, or pickups will be made where requested. The drop points will be: the JSC Federal Credit Union, the parking lot adjacent to the Nassau Bay Bank Building, and at the corner of Second Ave. and Ave. B on-site. The pickup points will be open from 7 a.m. to 7 p.m. Those persons desiring a pickup should call Richard Shouse at 339-2003 before 2 p.m. March 14 or the UAW office at 472-2298.

Societies to hold mini-symposium

The Institute of Electrical and Electronic Engineers (IEEE) and the Instrument Society of America (ISA) are sponsoring a mini-symposium on Joint Applications in Instrumentation, Process and Computer Control to be held March 17 at the University of Houston/Clear Lake City. Registration is \$5 and begins at 8 a.m. in Room 2-532 of the Bayou Bldg. at UH/CLC. Morning sessions, which follow at 8:30 a.m., include robotics, fault tolerant systems, space station studies, process control techniques, home computers, math analysis technologies and large scale space structures. Four concurrent 90-minute tutorial sessions will run in the afternoon. They consist of signal processing, fiber optics technology, distribution networks for control and a session on Ada/Intel iAPX-432. Lunch is available in the UH/CLC cafeteria and is included in the \$5 registration fee. Also offered is a free bus ride to the IAS trade show, admission free, in Texas City. For more information, call Dr. Zafar Taqvi at Lockheed, 333-6227 or Max Turner at UH/CLC, 488-9374.

Cookin' in the Cafeteria

Week of March 14-18, 1983

Week of March 21-25, 1983

Monday: Chicken Noodle Soup; Weiners & Beans, Round Steak w/Hash Browns, Meatballs & Spaghetti (Special); Okra & Tomatoes, Carrots, Whipped Potatoes. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday: Beef & Barley Soup; Beef Stew, Shrimp Creole, Fried Chicken (Special); Stewed Tomatoes, Mixed Vegetables, Broccoli.

Wednesday: Seafood Gumbo; Fried Perch, New England Dinner, Swiss Steak (Special); Italian Green Beans, Cabbage, Carrots.

Thursday: Cream of Chicken Soup; Turkey & Dressing, Enchiladas w/Chili, Weiners & Macaroni, Stuffed Bell Pepper (Special); Zucchini Squash, English Peas, Rice.

Friday: Seafood Gumbo; Baked Flounder, 1/4 Broiled Chicken w/Peach Half, Salisbury Steak (Special); Cauliflower au Gratin, Mixed Vegetables, Buttered Cabbage, Whipped Potatoes.

Monday: Chicken & Rice Soup; Texas Hots & Beans, BBQ Ham Steak, Steak Parmesan, Beef & Macaroni (Special); Green Beans, Carrots, Au Gratin Potatoes. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday: Tomato Soup, Potato Baked Chicken, BBQ Spare Ribs, Mexican Dinner (Special); Squash, Ranch Beans, Spanish Rice, Broccoli.

Wednesday: Seafood Gumbo; Baked Turbot, Liver & Onions, BBQ Ham Steak, Baked Meatloaf w/Creole Sauce (Special); Beets, Brussels Sprouts, Green Beans, Whipped Potatoes.

Thursday: Beef & Barley Soup; Chicken & Dumplings, Corned Beef w/Cabbage, Smothered Steak w/Cornbread Dressing (Special); Spinach, Cabbage, Cauliflower au gratin.

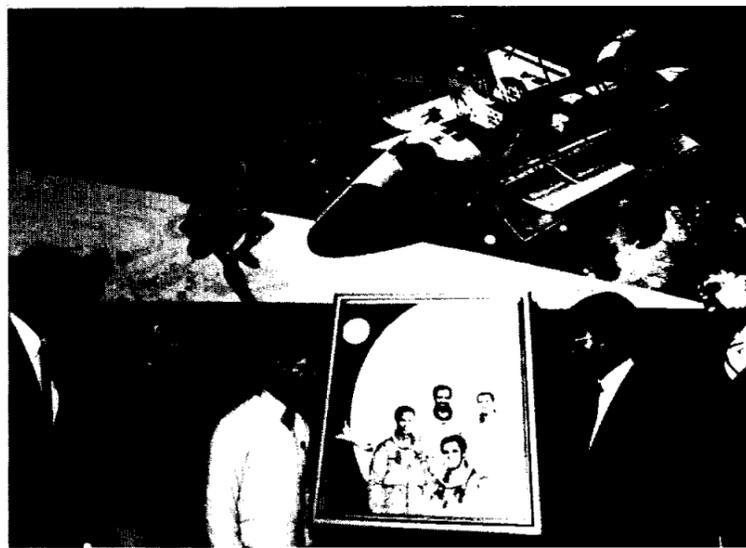
Friday: Seafood Gumbo; Pork Chop w/Yam Rosette, Creole Baked Cod, Tuna & Salmon Croquette (Special); Brussels Sprouts, Green Beans, Buttered Corn, Whipped Potatoes.

The unveiling of a portrait of America's four black astronauts Feb. 28 officially closed observances of Black History Month during an informal ceremony in Bldg. 2. Lt. Col. Guion S. Bluford, Maj. Charles F. Bolden, Lt. Col. Fredrick Gregory and Dr. Ronald E. McNair are portrayed against the backdrop of Earth, the Moon and an orbiting Shuttle. The painting was done by Dr. Harvel E. Blackwell, a professor at Texas Southern University, who made the portrait available to the National Technical Association's Houston Chapter for exhibits here and elsewhere. The next public display of the portrait will be with Cub Scout Troop 242 at the Wheeler Ave. Baptist Church in Houston in support of the troop's space month program underway during the month of March.

Efforts are underway at Virginia Polytechnic Institute and State University to establish a permanent professorial chair in the Department of Aerospace and Ocean Engineering in honor of former JSC Director Dr. Christopher C. Kraft Jr. One contribution to the effort came last week from Lady Bird Johnson, widow of the former President. In a letter to Mrs. Johnson, Kraft said he was "surprised and flattered" and gave credit to her late husband for his efforts on behalf of the U.S. space program. The Committee of 100, a group of distinguished graduates of Virginia Tech, has set the endowment of the chair as a major goal. Kraft graduated from Virginia Tech in December 1944 with a B.S. in aeronautical engineering.

The impulse is natural and often genuine, but petting or interfering with a Seeing Eye dog can create a dangerous situation. In fact, the Seeing Eye School in Morristown, New Jersey, where Seeing Eye dogs are trained, considers interference of the kindly-intentioned public to be the greatest safety hazard faced by dogs and masters alike.

Connie Alexander, JSC's Employee Assistance Counselor, is a case in point. Her two-year-old German Shepherd Seeing Eye dog, Cara, is a highly trained animal, but being petted by employees around the site can be very distracting. "You hate to alienate people," Alexander said, "but when they do this I often have to jerk abruptly at Cara's harness. This isn't meant as a punishment to the dog or an insult to someone who is petting her. It is part of the training to keep Cara's mind on business. Otherwise, I can end up running face-on into a wall."



From left to right, Bluford, Gregory and Bolden look on as Dr. Harvel E. Blackwell and NTA Chapter President Carrington H. Stewart present the portrait of America's four black astronauts.

People

"The Seeing Eye dog is a safe and capable guide when properly handled," said Elliott Averett, president of the training school. "While most people realize this, they sometimes, in a mistaken effort to be helpful, can create a dangerous situation. Grabbing the arm of a blind person, taking hold of the dog's harness or shouting words of warning all have much the same effect as might occur if a passenger in a fast-moving car grabbed the steering wheel or yanked the arm of the driver."

Petting a Seeing Eye dog is equally distracting, Averett added. "Nothing could be more natural than the desire to pet these guides, but they cannot be expected to keep their attention on traffic if at the same time they are receiving the affectionate pets of passersby. A deep, mutual understanding between dog and master is essential at all times to safe and efficient work."

So if you see Connie and Cara on any of their frequent trips around site, don't obey that impulse. Say hi, but please don't interfere.

Director of Engineering and Development Aaron Cohen has been awarded the Presidential Rank of Distinguished Executive for sustained extraordinary accomplishments in his federal career. Cohen was formerly manager of the Space Shuttle Orbiter Project and had responsibility for the design, development and manufacture of the fleet. "As a result of your technical and managerial leadership, the Orbiter spacecraft has proven itself to be a superbly engineered aerospace vehicle, fully capable of supporting this nation's space flight objectives into the 21st Century," wrote Administrator James M. Beggs and Deputy Administrator Hans Mark.

The first JSC Golf Association tournament was held March 5 at Hermann Park. Flight I golfers who placed were Matt Wiczekiewicz, first; Bill Jenkins, second; Cal Mitchell, third; and Jim Poindexter, fourth. Second flight winners were Bill Miller, first; Dick Theobald, second; Jerry Stein, third; and Tom Wantuck, fourth. The next tournament will be at Willow Creek March 26 for Flight I and at Goose Creek for Flight II.

The *Roundup* is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for all space center employees.

Space capsules around the globe

The Smithsonian Institution's National Air and Space Museum, which controls the whereabouts of spacecraft capsules from the Mercury Program to the Apollo Soyuz Test Mission, released this list recently of where all the capsules now reside. Normally, the Museum loans these artifacts out for five year periods and in most cases the loans are renewed on something of a permanent basis.

Spacecraft

Big Joe
Mercury Redstone-2
Freedom 7
Liberty Bell 7
Mercury Atlas-5
Friendship 7
Aurora 7
Sigma 7
Faith 7
Mercury 10
Mercury 12B
Mercury 15B
Mercury 19
Gemini 2
Gemini 3
Gemini 4
Gemini 5
Gemini 6A
Gemini 7
Gemini 8
Gemini 9A
Gemini 10
Gemini 11
Gemini 12
Apollo 4
Apollo 6
Apollo 7
Apollo 8
Apollo 9
Apollo 10
Apollo 11
Apollo 12
Apollo 13
Apollo 14
Apollo 15
Apollo 16
Apollo 17
Skylab 2
Skylab 3
Skylab 4
ASTP

Location

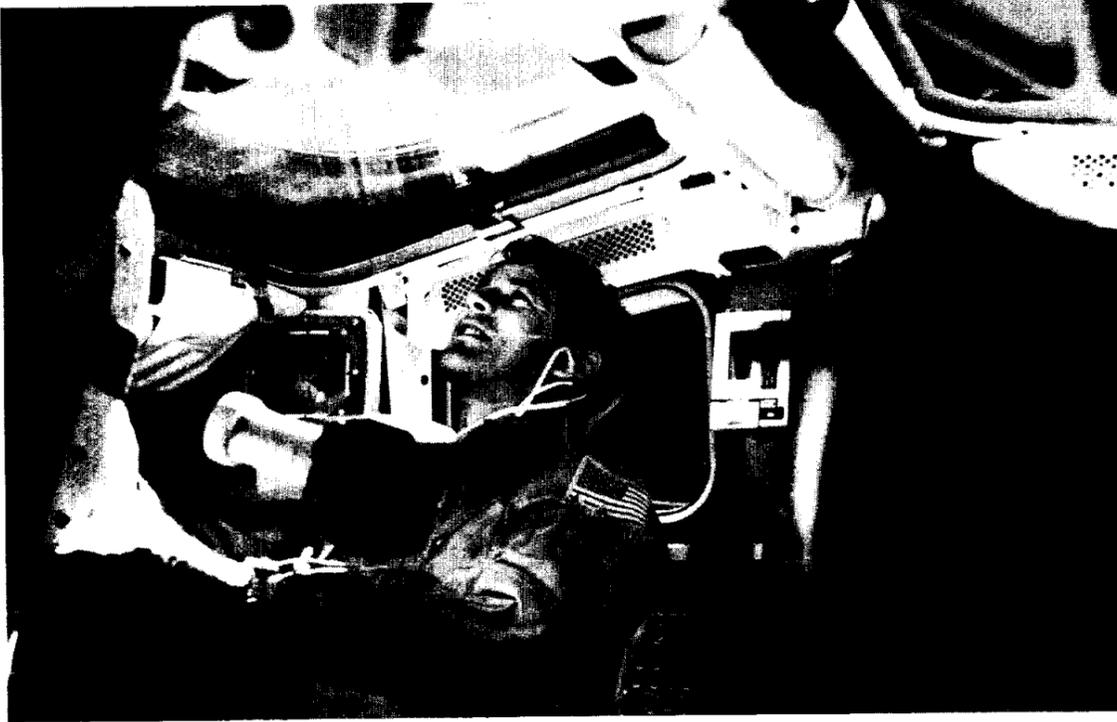
NASA Langley Research Center, Hampton VA
McDonnell Douglas Corp., St. Louis
National Air and Space Museum, Washington, D.C.
Lost in the Atlantic Ocean
North Carolina Museum of Life and Science, Durham
National Air and Space Museum, Washington, D.C.
Hong Kong Space Museum, Hong Kong
Alabama Space and Rocket Center, Huntsville
NASA Johnson Space Center, Houston
Kansas Cosmosphere and Discovery Center, Hutchinson
National Luchtvaart Museum, Schipol, The Netherlands
NASA Ames Research Center, Mountain View CA
Swiss Transport Museum, Luzern, Switzerland
USAF Space Museum, Cape Canaveral
Department of Natural Resources, Indianapolis
National Air and Space Museum, Washington, D.C.
NASA Johnson Space Center, Houston
McDonnell Douglas Corp., St. Louis
National Air and Space Museum, Washington, D.C.
Ohio Historical Society Armstrong Museum, Wapokeneta
NASA Kennedy Space Center, Florida
Swiss Transport Museum, Luzern, Switzerland
Japan Foundation for the Promotion of Maritime Science, Tokyo
Now in restoration at the Smithsonian
North Carolina Museum of Life and Science, Durham
Fernbank Science Center, Atlanta
National Museum of Science and Technology, Ottawa, Canada
Chicago Museum of Science and Technology, Chicago
Michigan Space Center, Jackson
Science Museum, London
National Air and Space Museum, Washington, D.C.
NASA Langley Research Center, Hampton VA
NASA Kennedy Space Center, Florida
Rockwell International, Downey, CA
USAF Museum, Wright-Patterson AFB, Ohio
Alabama Space and Rocket Center, Huntsville
NASA Johnson Space Center, Houston
U.S. Naval Aviation Museum, Florida
NASA Ames Research Center, Mountain View CA
National Air and Space Museum, Washington, D.C.
NASA Kennedy Space Center, Florida

Interview

Joe Allen

Around the world in 82 revs and other journeys of grand dimension

Dr. Joseph P. Allen IV was a physics student at DePauw University when the space age began with the Soviet Union's launch of Sputnik I on October 4, 1957. He wondered at the time, he says, why such a big deal was made over that space first. As a physics major, with an understanding of orbital mechanics, delta v's and the like, it had seemed possible, if not probable, to send an object hurtling around the world in the perpetual fall we know as orbit. In large measure, that event nonetheless propelled the United States into a great scientific awakening, and one indirect result a decade later was that Joe Allen had become part of a new breed, the scientist-astronaut. A quarter-century after Sputnik, he is a veteran of 82 orbits of the Earth aboard STS-5 last November. Now firmly back on the ground, he took time out recently to answer some questions:



Joe Allen peers out at the Earth through the overhead flight deck windows on Columbia during STS-5 in November, his trusty camera floating freely in front of him.

Roundup: Where were you, and what were you doing, when you got a call from the Manned Spacecraft Center to come down and be an astronaut?

Allen: I was basically pretty well established in a career of academic research. I had been at Brookhaven for awhile and I was doing research in a nuclear lab at Yale University when I applied. My application was as much out of curiosity as it was out of a real intention to become an astronaut, because people from the science world did not become astronauts after all. There was no real precedent for that. Yet it didn't cost much time or effort to send in a request for an application blank. In the meantime, I had accepted a position with the University of Washington in Seattle and in fact had moved there when the wheels of government, turning as they do slowly but perhaps relentlessly, found my new address and sent back the application I had asked for some many months earlier. And I looked at that, filled it out, and one thing led to another. In those years, somewhat in contrast to the process we have today which begins and ends in a number of weeks, it was a fairly long drawn out affair then, which was in 1966, 1967. Together with a number of others, I eventually went for a week at Brooks Air Force Base in San Antonio and went through a series of exams and tests there. I left that week, by the way, fully convinced that anybody that qualified for astronaut status physically should automatically be disqualified mentally, because they carried out a number of physical tests, some of which were rather uncomfortable. And a person in sound mental condition would not have allowed himself to be subjected to that.

Roundup: Were those the same types of tests so vividly described in Tom Wolfe's "The Right Stuff"?

Allen: A more accurate description, I think, can be found in the Brian O'Leary book, "The Making of an Ex-Astronaut." It's very well described there. Brian, in fact, had come through the same process I did at about the same time. We were taken in that sixth group, which was the second group of scientist-astronauts. But to answer the first question, I was carrying out an experiment on a Van de Graff accelerator in this university laboratory in Seattle when I got a telephone call from Alan Shepard, as I remember, in the late morning, and I was both surprised and quite pleased, although I did not know what to expect. The one other thing I remember vividly about that day was that

this was a rather quiet and conservative laboratory, where we did some interesting experiments in a careful but quiet way, and that afternoon the laboratory halls were filled with television cameras and news people. They were there for I would guess two hours total, doing interviews for the evening news, asking such important questions as, 'Now that you're an expert in the space business, what do you think about blank?' And of course I knew no more about the space business than any other person in Seattle at that time.

Roundup: Was that your first real plunge into the world of the news media?

Allen: Yes, absolutely. And it's just like jumping into very deep water. However, I say the place was swarming with people in the news business and continued to for two hours and then they dismantled their equipment. And three hours after the telephone call came to me the place was just as empty as it had been before, and we continued the experiment. The interest seemed to be intense but very short lived, and at the moment I thought, 'My, this public fame is certainly a very transient phenomenon.' I still think that's true, and it's probably very healthy for everybody.

Roundup: Andy Warhol once said the ultimate effect of mass communications will be to make every person on Earth famous for 15 minutes. Does it seem that a less severe version of that process comes into play with each new crew announcement?

Allen: In a way, yes. There is a time when you are no longer totally anonymous, and you are in fact a representative of all of NASA and to a degree of the American space effort, and there's a lot of attention associated with that. I think a few weeks later, however, what happened on the flight is pretty well understood, but the names of the people involved becomes less clear in the minds of the public and a few months later it is completely gone. One example is the STS-5 crew. The four of us might be remembered by people around JSC, but I hope not because we flew STS-5, but because we're colleagues and co-workers of an awful lot of people here, who also remember that in addition to serving on this board or working on that design effort we also flew STS-5, and that's a nice way to be remembered and a constructive way. And it's exactly the

way we also know our colleagues who are around the center. But I do think with the way Shuttle is going, we are very rapidly approaching the point where there is going to be dramatically less public interest in each flight as a flight and the interest is going to focus on what we've done in space transportation during a given year. It will be a natural evolution, and will show maturity on our parts. There is a potential danger of it being misinterpreted by some as a lack of interest by the American public. That is not the case. It would be a misinterpretation of the facts. I think the American people are, in a genuine, steady way, quite proud of and interested in efforts that we at NASA focus our attention on, and they are very supportive, very supportive. By the same token, being interested in it does not mean a burning desire to read about the details of every single flight.

Roundup: Perhaps what we are talking about is a shift from interest in the Alan Shepards and the John Glenns to interest in our expanding capabilities in space.

Allen: Yes, but there will still be human interest stories — people are interested in people — but the human interest is not going to be so much in the lone pioneer or the representative of mankind in the form of a John Glenn sitting there on a rocket. Rather, it will be an interest in the various skills and abilities of people who wind up in space. These won't be lone explorers, but pioneers. Not the lone scout who goes out, but these people will be pioneers on the frontier of a different sort of environment, not necessarily harsh, but up there in the habitat, the outpost in space, it will still be on the frontier, and there will be a different kind of interest in that. There is an interesting analogy, I think. When I grew up, I can vaguely remember people in that part of the Midwest being identified as aviators. They were aviators, and they were those who flew around in biwing airplanes in the '20s and '30s and barnstormed and all of that. There are no aviators around anymore. A lot of people fly airplanes; they're called pilots. An enormous number of people are users of airplanes; they're called passengers. I think in the generation to follow us, there are not going to be astronauts either. The word astronaut is going to go the way of the word aviator. There are going to be

people who fly spacecraft; they will be commanders, pilots or whatever, but they won't be called astronauts per se. And there will be a lot of people associated with a flight; they might be called mission specialists. But mainly they are experts, and in the long run there will be passengers involved as well. But the word astronaut itself will one day drop from common usage.

Roundup: During the Apollo program, you worked in mission planning and support, especially on Apollo 15. As a scientist-astronaut, what do you remember about those days?

Allen: The last Apollo flights are good examples of a balance of forces which existed within the science and spaceflight community, and it can be summarized like this: we went to the Moon for political reasons, largely, and by that I mean the events which shaped world affairs in the late '50s and early '60s focused the leaders of this country into proposing that landing on the Moon might be a worthy goal to pursue, which resulted in President Kennedy's famous speech in 1961. This was a commitment, a focus of resources, that resulted from a confluence of political events. Nowhere in the speech did it say that we should do geology, or that we should explore different regions of the Moon. Nowhere in the speeches was that mentioned. And so the goal was basically satisfied with the flight of Apollo 11. Of course, the huge effort which was undertaken brought us the knowledge, the equipment and the manpower to fly more than just Apollo 11. This was in 1969. Well, this was the balance of forces — with the one force saying that we should use the hardware but not be too cavalier. The idea was to proceed very carefully lest we bite off more than we could chew, have a failure of some kind and, God forbid, lose a crew, a spacecraft and in many ways taint the whole aura of Apollo. The other force held that since we could now get to the Moon, we should be very imaginative and take a few chances in order to maximize the things we could learn about the Moon. The two forces pressed very hard against one another, which is human nature. What resulted was basically Apollo 15, 16 and 17. They in many ways were innovative. We wound up with compromises on the later missions

where no side totally monopolized. We took some chances. Apollo 15, for example, landed right beside this large canyon, Hadley Rille. That took a certain amount of trust in the equipment. And it was not the most conservative place that could have been selected. We could have landed right in the bottom of the canyon. And yet it was geologically such an interesting area that the scientific curiosity carried the day in terms of where the landing site was to be. The results speak for themselves. Those were interesting times.

Roundup: One of the activities you took part in after Apollo was the Outlook for Space study. Among the conclusions of that effort was the assertion that we should work to improve our ability to take all of this data we acquire and make it more accessible. I think the operative phrase was "end to end data management." Are we any closer to that?

Allen: Yes, I think we are. With the Shuttle, we have the real transportation capability to carry numbers of satellites up that can be linked via computing and communication networks to enable us to do that. It is a worthwhile goal, and one we are approaching.

Roundup: One result of such a massive information capability might be a better understanding of this huge mechanism we call an atmosphere. NASA has proposed a global habitability study, similar in scope to the International Geophysical Year of 1957. As one of the more than 100 humans to see the atmosphere from space, how do you view the significance of that proposal?

Allen: We are alive in a very interesting age. We are beginning to get the computing, the number-crunching capability, and the increased use of a vantage point — that being space — to where it is entirely feasible to come out with some meaningful information about what is causing the planet to behave the way it behaves. And with that information, we can turn out forecasts of what will or will not affect the planet. It will be more than just casting chicken bones into the sand. Forecasts will be available which really have some validity for several decades into the future. We are in a position to start to do that sort of thing.

Roundup: In viewing the Earth from space, was there any one sight which especially impressed you?

Allen: I don't have one, I really don't. It was one gee whiz thing after another. I envisioned myself, even after all the years of being here and talking with people who have been in space, of making an airplane trip, higher and faster to be sure, but still a trip in a kind of high performance airplane. But in the first hours in orbit, I began to realize quite rapidly that it wasn't like a high airplane trip at all. It took me a long time to know why, and I think I know why now. Columbia, when it flies in orbit, is not like an airplane at all. It flies in any direction we tell it to fly: tail first, belly first, belly down and so on, and there's never any sense as you look out a window of being in an airplane. In fact, just the opposite. When you look out, and you realize that you are flying upside down, wing forward, that is very un-airplane like. The experienced pilot in your head is made very nervous by that sight. Airplanes don't fly like that, or they are in a flat spin if they do. Secondly, there is no engine sound. I had flown I guess about 3,000

(Continued on page 4)

Around the world in 82 revs

(Continued from page 3)

hours and had never thought about the fact that there's always an engine sound out there. And in fact the only terrifying moments I recall from flying is when the engine sound went away. That gets your attention faster than anything you can imagine. But there is no engine sound on *Columbia*. There's an air conditioning sound, a pump sound, an electrical sound — there are hums and whistles and moans and groans — but there are no engine sounds. There is also a three-dimensional view. I don't know if that comes from looking on a curved Earth, or from the fact that you are above the clouds and are looking down at them and then 10 miles below that at the Earth. There is a 3-D effect. In any event, my impression was of being in a huge gondola.

Roundup: It has been said that in all of history, one of the most important shifts in human perception came from those first photographs of the Earth, fragile and alone, because of how they changed our normally terrestrial outlook. What did spaceflight do to your perceptions?

Allen: One of the wisest observations about the Apollo Program was made, I believe by Norman Cousins, and he said, "On the way to the Moon, man discovered the Earth," and that is a statement with

a lot of meaning in it. Interest in the environment and ecology has increased. The people interested used to be the lone voice, the wise voice, to be sure, but very much alone. Suddenly, at exactly the time those pictures were beginning to appear, that lone voice was getting a lot of listeners and in fact even some political action. When you look out at the enormity of the globe and the ruggedness of the globe, you are struck, your eyes look out over a vista that is truly awesome, but I'm not sure it is the size of it that boggles the mind. It is large, but after all, you are looking out at the whole world. And the very thought that your eyes can take in a sizeable fraction of the whole world says that maybe the world is not as big as your mind led you to believe. Also, there is a fragility to it. We were 200 statute miles high, more or less, and during the sunrises and sunsets you would find yourself looking at the horizon through the thickness of the atmosphere. It is 10 miles thick, if that, and you can judge that height. You have sense of depth. And 10 miles is not very thick. It almost looks like a skin on the Earth with a rather fragile nature to it. The fact that you can see through it tells you — I'm giving you the psychological impression here — that maybe it really

isn't that rugged, and you know that all of life as you know it by and large exists right in that thin envelope. My overall feeling is it looked pretty delicate to me. At the same time, I still have some thoughts that are still very strong in front of my mind, as I look in my mind's eye from orbit back at the Earth. One of those thoughts I just described, the atmosphere. I do not feel, and this is Joe Allen talking about Joe Allen, I do not feel I have been dramatically changed by that. However, I do think I have been changed by that, I hope in a constructive way, exactly as I would be by a trip I make anywhere. If you go a short distance you are changed a little bit. If you go on a long trip across the Atlantic or across the Gulf of Mexico in a boat or down the Rio Grande in a canoe or wherever you go, you are changed by that and broadened. Trips tend to change people, by and large for the better. And this, no question, was a very grand journey. To orbit the Earth, traveling around the planet 82 times, is to travel many, many miles. And the views that go past your eyes are breathtaking, to say the least. I tried to pay attention every moment I was there. Some good chunk of it is still in my mind, and I will try to hang on to it as long as I can.

Gilruth Center News

Call x3594 for more information

Yoga — Through the use of classic yoga exercises, this course is designed to help promote health and a sense of vitality in everyday life. Class meets from 7 to 8 p.m. beginning April 6. This Wednesday night course costs \$20 per person.

Beginning Oil painting — Learn the relaxing art of oil painting in this class for beginners starting April 5 from 7 to 9 p.m. The eight-week class costs \$25 per person.

Ladies exercise — This class meets Tuesdays and Thursdays from 5:15 to 6:15 p.m. at a cost of \$12 per month. This on-going class will gradually get you into shape.

Karate — This course meets on Mondays and Wednesdays from 5:30 to 7 p.m. and costs \$20 per person.

Dinner movies — Due to the success of our children's movies, a new program of movies for the older set has been added. Programs feature a social hour at 6 p.m., dinner at 7 p.m. and a movie at 8 p.m. The feature March 26 is "On Golden Pond." Tickets can be purchased at the Bldg. 11 Exchange Store for \$4.50 per person.

Race — Sign up now for the Space Shuttle 1/4 marathon and 1/2 marathon race to be held March 26. T-shirts will be given to the first 500 entrants. Starting time is 8 a.m. The cost is \$5 per person and late registration is \$8.

Children's Easter party — Tickets are on sale for the children's Easter party March 26. A feature presentation will be Walt Disney's "Winnie the Pooh." The program includes an Easter egg hunt as well. Tickets are on sale at the Bldg. 11 Exchange Store.

Ladies weight training — This popular course begins April 4 for six weeks. Class will meet Mondays and Wednesdays from 7 to 8 p.m. The cost is \$20 per person, first come, first served.

SETI

(Continued from page 1)

Louis Friedman, Executive Director of the Planetary Society, will be at JSC Wednesday, March 16 for a program being held in

conjunction with the 14th Lunar and Planetary Science Conference. The program, "Prospects for Planetary Exploration," is open to conference attendees and members of the Planetary Society and begins at 8 p.m. in the Bldg. 2 Visitor Center Auditorium.

Roundup Swap Shop

Ads must be under 20 words total per person, double spaced, and typed or printed. Deadline for submitting or cancelling ads is 5 p.m. the first Wednesday after publication. Send ads to AP 3 Roundup, or deliver them to the Newsroom, Building 2 annex. No phone-in ads will be taken. Swap Shop is open to JSC federal and on-site contractor employees for non-commercial personal ads.

Property & Rentals

For sale: 1/3 acre lot at Lake Houston, 1/4 mile from boat launch, electricity, \$1,950. Call 333-3673 after 6 p.m.

For sale or rent: One BR Condo on El Dorado, washer/dryer and ceiling fan, rent for \$350/month, sale for \$6,500 (owner finance). Call Richard, x4770 or 480-8021, evenings.

For rent: Condo, last week March, Fairfield Country Club, Flagstaff, AZ, sleeps 6, furnished, fireplace, ski area. Call 488-5491, evenings.

For sale: Webster, Pipers Meadow, 2-2-2, large fenced lot on cul-de-sac, fireplace, FHA assumable, low equity, many extras. Call Nina, x3551 or 480-6720, evenings.

For lease/lease: League City 3-2-2, central air/heat, fenced yard, assume 8.75% FHA, \$535/mo. rent plus deposit. Call Tom Clarry, x5971 or 480-0137, evenings.

For lease: Sterling Knoll 3-2-2, newly decorated, \$575/mo. plus deposit. Call 488-0500 or 480-6516 after 6 p.m.

For rent: Galveston By-The-Sea condo, 2 BR, furnished apartment for rent by day (2 minimum) weeks or month. Call Clements, 474-2622.

Cars & Trucks

1971 Olds Cutlass, 4 DR HT, PW, PB, AC, good tires, runs good, make offer. Call Lew, x2541.

1979 Ford Pickup, F-100, like new, AC, AM/FM/8-track, new radials, std. trans., 30K miles, \$5,000. Call 332-9041 or 332-1127.

1957 Chevy front end complete, including extra front bumper, \$200. Call Noakes, x7428 or 482-3546 after 5 p.m.

1976 Chevrolet Nova Concours 4-door, A/C, power, AM/FM, dark blue, clean, one owner, book value \$2,150, asking \$1,800. Call Ken, 487-9179.

1967 Mustang, 289-V8 engine, auto, AC, clean, new tires, partially restored, \$2,500. Call Mack, 486-7379 after 5 p.m.

1977 Datsun F-10 wagon, 4 speed, radio, AC, 33 mpg, reg. gas, 68K miles, \$1,500. Call Craig, x4189 or 559-1795 after 5 p.m.

1979 Ford F-100 long bed pickup, 351, 44K miles, 3 speed, 2.75 rear end. Call Nelson, x3427 or 334-1883, evenings.

1978 Olds Cutlass, auto, AM/FM/8-track, bucket seats, center console, silver/red, 51K miles, below Bluebook. Call Steve, x3561, or Doug, 334-2179 after 4:30 p.m.

1978 Camaro, auto, AC, PS, PB, excellent condition, \$3,595. Call 774-3030 after 5 p.m.

1981 Pontiac diesel V8 Grand Prix, air, power windows and seats, cruise, tilt, wire wheels, plush interior. \$1,500 down with approved credit buys it. Loan value \$6,850. Call Alter, x5111 or 480-9515 after 5 p.m.

1971 Honda 600 auto., parting out. Call White, x2068 or 474-2214, evenings.

1981 Celica ST Coupe, PS, PB, sunroof, air, auto trans, 34K, asking \$5,600. Call Tom, 480-2776.

1977 Olds Omega, 305 V8, all options, only 37K miles, great condition, only \$3,000. Call W. Shelton, x5451 or 554-6835.

Boats & Planes

For sale: 10' inflatable rubber boat (lightness safety and stability with rigid hull & fitted buoyancy tubes), plus gas tank and 2 life jackets, \$425. Call B. Reina, x2314 or 488-1326, evenings.

15' walk-thru windshield boat on rusty trailer, mechanical steering, lights, windshield and top, \$300. Call Pat Wilson, x5247 or 477-8585, evenings.

For sale: 18 foot; Victoria Eighteen Sailboat, good condition, 1981. Call Tracy after 6 p.m. 482-8425.

500mm mirror lens, like new, T-mount, \$110; Contax 111a, f2, excellent, \$125; Exakta VXLIIa, meter finder, accessories, \$125. Call Earl, x5338 or 488-1382 after 5 p.m.

Audiovisual & Computers

TRS 80 Model III 16K, dot matrix printer, cassette storage, built-in monitor, 5 mos. old, \$1,500 new, \$1,000 flexible. Call Joel, x2068 or 480-1696, evenings.

Commodore 64 computer, cassette recorder included, \$475 or best offer. Call Carl, x3491 or 486-8672, evenings.

AM/FM stereo record player, \$50. Call Mark, x4436 or 554-2538 after 6 p.m.

48K Apple II, disk drive, and printer. Call Ron, 996-9734.

Colecovision, excellent condition \$140, Turbo with controls \$50, Zaxxon \$30, Venture \$20. Call Ken, x2065 or 473-2602, evenings.

Astronomy programs for the VIC-20 and Timex/Sinclair, on C-10 cassette tapes. Call Mike, 488-5660 x372 or 482-1462 after 5 p.m.

Technics turntable, Technics receiver, Pioneer 8-track, 2 Webach speakers, excellent condition, \$600. Call Noel, x5231 or 474-2906 after 5 p.m.

Household

Like new Lady Kenmore portable washer, convertible connection, 2 years old, excellent condition, \$150. Call Thompson, x5511 or 480-4131 after 5 p.m.

For sale: Brown/gold plaid daybed corner unit, like new mattresses, exc. cond, \$230; old lawnmower works, \$15; old washing machine for parts, \$10. Call Brenda, x3836 or 996-9738 after 4:30 p.m.

Frost-free coppertone Frigidaire refrigerator, \$250. Call Bob, x4031 or Mary, x4010.

All wood pecan, oval Fr Provincial dining rm set. High-back cane chrs, \$250. Call Dianne, x2558.

Zenith stereo in Mediterranean cabinet, includes 8-track & AM/FM radio, \$275. Call Dianne, x2558.

42" round pedestal dining table with 3 matching/1 odd chair. Needs refinishing. Call 337-5396 after 5:30 p.m.

Formal dining set, table extends to 8', 8 chairs, lighted china cabinet, \$650. Call Larry, x3411 or 331-5790.

Swap Shop advertising guidelines

Following is a list of requirements for advertising in the Roundup Swap Shop:

- Swap Shop deadline is close of business the Wednesday after the date of publication. The operative word is "date." This issue is dated March 11. It makes no difference that you may be reading it on March 14 or 15: the deadline is still Wednesday, March 16 for the next issue. Roundup publication dates through May are: March 25, April 8, April 22, May 6 and May 20. Deadlines for those issues, respectively, are: March 16, March 30, April 13, and April 27 and May 11.
- Ads must be submitted on 8-1/2 x 11 paper. Buck slips, index cards and anything else which is not sized 8-1/2 x 11 is unacceptable and will be discarded.
- Ads must include the full name,

the mail code, office extension and home telephone of the advertiser. Those are four absolutely essential pieces of information for the editor. The absence of any one will cause your ad to be discarded. This information does not necessarily have to be reprinted in the ad itself. That is up to you.

- Please write legibly, or better yet, type it. We do not decipher.
- Ads must be about 20 words each. We won't quibble if an ad is 25 words — just keep it short and to the point. No more than two ads per person will be accepted per issue. If you send us three, we'll pick two.
- There is no guarantee that your ad will always make it into the Roundup even if you meet all the requirements and submit it before the deadline. We try very hard to place every ad on time, but that is not al-

ways possible for a variety of reasons. If your ad does not make it, we will automatically insert it into the very next issue. It is up to you to cancel that advertisement if necessary. At the same time, we do not automatically run ads on a continuing basis. Each ad submitted will be published *only once* in the Roundup. If you want it to appear in several issues, you must resubmit it, by the deadline, for each issue.

- No phone-in ads will be accepted.
- No commercial ads will be accepted.
- The Swap Shop is open to all JSC civil service and contractor employees.
- Send your ads to Roundup Swap Shop, Code AP3, or drop them off at Bldg. 2, Room 147.
- Many thanks for your cooperation.

Want couch, velour, polished cotton, or similar materials, prefer floral patterns, rattan or contemporary styles. Call 280-8091 after 5 p.m.

Want turntable in good condition, style that plays one album at a time. Call 280-8091 after 5 p.m.

Pets

For sale: AKC black toy poodle, female, 8 wks. Call 332-2032 after 5 p.m.

Free puppy, 7-8 wks old, mixed breed w/Labrador overtones, shots, wormed. Call Rainey, x2651 or 474-2988, evenings.

Miscellaneous

Auto-wind Seiko watch, blue face, gold plate, gold and silver band, worn twice, perfect condition, \$125 new, sell for \$50. Call Randy, x3594 or 480-5194, evenings.

1977 Honda SL100. Runs good. \$250. Call Doherty, x5326.

Like new Magic Mill II Grinder, \$175. Call Doherty, x5326.

One P195/75R14 Goodyear polysteel radial tire, less than 7K miles, has small cut on side, great spare, make offer. Call Lew, x2541.

1981 Honda Express, with baskets, low mileage, excellent condition, \$275. Call 488-4069, evenings.

1973 Yamaha Enduro AT3-125cc, very clean, new battery and tire, electric starter, street legal, runs great, \$275. Call Flanagan, x5169 or 333-5475 after 5 p.m.

1982 Honda 750 Nighthawk with sissy bar, less than 4K miles, black/silver, \$2850. Call Mark x2896.

For sale: Girls 26" 10-speed bike with child seat on back, very good cond, price negotiable. Call Shannon, x4831.

Sears rear-bagger self-propelled lawn mower, 21 inch cut, Sears overhauled in Jan, \$100. Call 333-6211 or 474-4658 after 5:30 p.m.

Delco AM/FM car stereo with balance and fader controls, from '82 Firebird, \$100. Call Mark, x6226 or 332-2686 after 5 p.m.

Two pair men's ski boots, size 10, Nordica Astro Slalom, one pair excellent \$30, other pair \$10. Call Allgeier, 488-0397, evenings.

Free furniture storage in home for use, formal living and dining, 1 BR. Call Dave, 482-6702, evenings.

Man's left-handed Wilson softball glove, excellent condition, used 7-8 times, \$15.00. Call 337-3973 after 5:30 p.m.

Beautiful Victorian open-front doll house kit, original cost \$100, sell for \$40. Call Nancy, 4381.

Auto shop manuals: 1974 Buick \$10, SAAB 99, \$20. Call Jim, 488-8143, evenings.

Ping pong table, \$70. Call Dennis x6393 or 482-5021, evenings.